

XI. *Descriptions of a new genus and four new species of Calopterygidae, and of a new genus and species of Gomphidae.* By R. McLACHLAN, F.L.S., Sec. Ent. Soc.

[Read 2nd May, 1870.]

IN the course of an arrangement, which I have recently completed, of the *Odonata* belonging to the family *Calopterygidae* in the collection of the British Museum (with which is incorporated that of Mr. Wilson Saunders), I found, among others, the four new species herein described, one of which forms the type of a new genus. And I have added a remarkable new form of *Gomphidae*, from my own collection, pertaining to the singular genus *Petalia*, taken in its broad sense. The species described are as under:—

CALOPTERYGIDÆ.

<i>Psolodesmus</i> (n. g.) <i>mandarinus</i>	.	.	Amoy.
<i>Euphœa compar</i>	.	.	Amoy.
<i>Micromerus bisignatus</i>	.	.	Celebes.
<i>Chalcopteryx scintillans</i>	.	.	Upper Amazons.

GOMPHIDÆ.

<i>Hypopetalia</i> (n. g.) <i>pestilens</i>	.	.	Chili.
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Fam. CALOPTERYGIDÆ.

PSOLODESMUS, n. g.

Belonging to the "Legion" *Calopteryx* (De Selys). Form of *Calopteryx* (sens. strict.). All the wings provided with a large, subquadrate, dilated pterostigma; quadrilateral slightly convex on its upper margin, and slightly dilated at its extremity; basal space empty; arculus angulate; inferior branch of the second sector of the triangle running obliquely into the inner margin in an unbroken line; all the sectors much ramified and curved at their extremities (in other words, there are 5-6 supplementary sectors between each leading one). First joint of antennæ very short. Legs with very long spines. (♂.)

I have founded this genus upon a large undescribed insect from China, which will not arrange itself in any existing group, In the form of the quadrilateral (a character which is probably eminently artificial) it approaches *Vestulis*, yet not more so than does *Neurobasis*, but differs in its angulate arculus, in the presence of a very strongly marked inferior branch of the second sector of the triangle (the form and direction of which is peculiar), and in the possession of a large pterostigma. On the other hand, it differs from any group of De Selys' "première cohorte." Thus, from *Calopteryx* (sens. strict.) it is separated by the possession of a well-formed pterostigma, even in the ♂, and from *Matrona* by the same character, combined with the free basal space; from *Cleis*, *Sapho*, *Mnais*, and *Echo*, it differs in its angulate arculus (from *Echo* also in its free basal space), approaching the first (*Cleis*) in the curved ramifications of the sectors; from *Phaon* and *Neurobasis* it is separated by the form of the antennæ, and presence of a pterostigma (from *Neurobasis* also by the free basal space).

After a consideration of all these characters, I am inclined to place *Psolodesmus* near *Calopteryx* (sens. strict.), on account of its general form, notwithstanding that in the form of the quadrilateral it approaches *Vestulis*.

Psolodesmus mandarinus, n. sp.

Dark bronzy-green. *Head*: labrum shining black; clypeus metallic blue-green; second joint of the antennæ pale yellow in front. *Prothorax* with the hinder margin blackish. *Thorax* proper with the dorsal and lateral sutures black; sides metallic golden-green beneath the posterior wings. *Legs* black, with black spines; coxæ, trochanters, and base of femora, beneath, yellow. *Abdomen* brownish-black; the first and second segments bronzy-green (segments 7-10 wanting).

Wings similar in form and coloration; the basal half (or rather more) sub-hyaline, smoky; afterwards there is a broad, oblique, semi-opaque, white band; apical portion (one-fourth of the entire length) blackish-brown with brassy reflections; neuration blackish; nodus placed nearer to the base than to the pterostigma; pterostigma brown, surrounded by strong black veins, surmounting

10-12 cellules, the lower side longer than the upper, inner side very oblique, apical side angular, owing to the insertion of a broken vein, which divides the post-stigmatal costal cellules into two rows. Forty antecubital nervules, and about ninety post-cubital, in the anterior wings.

Length of body? (27 lines = 57 mill., to end of sixth segment). Expanse of wings, 45 lines (= 94 mill.).

Hab.—Amoy, in China.

This fine insect somewhat reminds one of *Echo margarita* in its coloration, but is nearly half as large again.

Euphœa compar, n. sp.

♂. Head and thorax black; ocelli yellow. *Prothorax* with a large raised round red spot on each side. *Thorax* proper with red lines arranged thus:—one at the lateral suture, continued round in front halfway down the dorsum, giving the idea of this line being connected with a short humeral one; below this are three lines, each of which is continued round at its lower end, forming a hook; interalar space spotted with red. *Legs* black, the tibiæ dark piceous externally. *Abdomen* pale brown; second segment not armed with a tooth on each side of the genitals; sutures of segments, and the longitudinal ventral suture, narrowly blackish (terminal segments wanting).

Anterior wings narrow, hyaline, slightly discoloured, the costal margin tinted with brownish-yellow up to the nodus; pterostigma long, black, surmounting nine cellules. *Posterior wings* strongly dilated in the middle; basal portion hyaline up to slightly within the nodus; the costal margin brownish; extreme apex, from about the middle of the pterostigma, also hyaline; the rest of the wing occupied by a very broad blackish fuscous band, with golden reflections, this band commencing slightly nearer the base than the nodus, its inner margin nearly straight, the outer slightly convex.

♀. *Head*: labrum with two large yellow spots, and a similar spot on each side of it on the cheeks; front with a triangular yellow spot on the margin of each eye. *Prothorax* with two very large, round, raised yellow spots. *Thorax* proper with the markings reddish-yellow, similar to those of the ♂, but the humeral and first lateral stripe

form a nearly complete oval, which is interrupted only at its lower end. *Legs* black, the base of the femora with a cuneiform yellow line externally. *Abdomen* black; first segment with a very small lozenge-shaped yellow spot above, and a large triangular spot on each side; the rest with three yellow lines interrupted at the sutures; the dorsal one fine, almost obliterated on the sixth and seventh segments, afterwards reappearing on the eighth and ninth as a yellow lanceolate spot; lateral lines broader, also interrupted at the sutures, and on each segment, by a fine black transverse space near the anterior end, this line obliterated on the seventh, being there visible only as a small spot at each end, eighth and ninth with a large spot at the posterior end, tenth broadly margined with yellow; appendices longer than the tenth segment, acute, slightly curved, denticulate externally at the apex.

Anterior wings hyaline, and tinged with brownish-yellow up to the nodus, but less distinctly on the inner margin. *Posterior wings* hyaline, strongly tinged with yellowish-brown nearly up to the pterostigma, leaving only the apex purely hyaline. 24-26 ante-cubital nervures, 28-31 post-cubital, in the anterior wings.

Length of body, ♂ ?; ♀ 20 lines (=42 mill.). Expanse of wings, ♂, ♀, 33 lines (=69 mill.).

Hab.—Amoy, in China.

Appears to have some affinity with *E. decorata*, but much larger, and the dark band of the posterior wings much broader. Both the ♂ and ♀ above described seem to be perfectly adult.

Micromerus bisignatus, n. sp.

Head and thorax black. *Head* above with four yellow spots in front of the antennæ, placed close together, and six reddish spots on the crown (one on each of the ocelli, and four placed in a row posteriorly). *Prothorax* margined with reddish-yellow in front, and with spots of the same colour on each side. *Thorax* proper: above with two narrow reddish lines on each side, and beneath them, on the sides, two broad yellowish bands, the upper of which is divided transversely into two portions: breast with a longitudinal central row of four large transverse yellow spots. *Legs* black, the interior of the femora whitish-yellow. *Abdomen* red, the sixth segment paler, slightly greenish, the succeeding segments deeper red;

first segment with a large quadrate black spot, not reaching the posterior margin; second segment blackish in the middle; sutures of all the segments broadly black; ninth and tenth black at the sides; ventral longitudinal suture broadly black: superior appendices curved, black, somewhat clavate at the tips; inferior appendices triangular.

Anterior wings hyaline, semicircular at the apex; no pterostigma; costal vein thickened and reddish just before the nodus; a broad, brown, somewhat quadrate band below the nodus, reaching across the wing, slightly fenestrate with clearer spaces; apex broadly dark brown, this space being about as broad as long, and straight internally. *Posterior wings* hyaline, tinged with yellow, the apex narrowly smoky; pterostigma surmounting 3-4 cellules, dilated, black. Nine ante-cubital nervules and about twenty-two post-cubital nervules, in the anterior wings. (♂.)

Length of body, $14\frac{1}{2}$ lines (=31 mill.). Expanse of wings, 27 lines (=56 mill.).

Hab.—Tondano, in the Island of Celebes (Wallace).

This, one of the largest of the genus, is the only described species in which the anterior wings have a median, as well as an apical, dark band.

Chalcopteryx scintillans, n. sp.

Closely allied to *C. rutilans*, Ramb., and of the same size; it differs as follows:—

C. scintillans (♂).

Head: crown with two very small and indistinct reddish spots; front entirely unspotted.

Prothorax unspotted.

Thorax proper, with no median red bands; a very slender humeral line on each side, and three similar lateral ones, yellow.

Abdomen entirely black, without spots.

Legs entirely black.

Anterior wings slightly broader; pterostigma shorter.

Posterior wings: upperside entirely brassy, without any blue at the base: underside brown, with brilliant metallic purple reflections, changing to bluish on the margins.

C. rutilans (♂).

Head: crown, front, and labrum with many large orange-red spots.

Prothorax with two red spots.

Thorax: with two broad submedian bands, and a humeral line on each side, orange-red; below these are three yellow lines.

Abdomen: first segment with yellow spots.

Legs: interior of femora brownish.

Posterior wings: upperside brassy, the apex coppery, the base metallic blue: underside uniformly of a brilliant fiery copper-colour.

I have examined six males of *C. scintillans*, collected by Mr. Bates at St. Paulo, on the Upper Amazons. The female, probably, has the base of the posterior wings hyaline, as in *rutilans*.

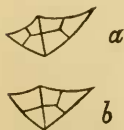
The almost total suppression of red markings on the body, the short pterostigma, and the difference in the coloration of the posterior wings, both above and beneath, establish this as a good and distinct species. Besides, Mr. Bates informs me, that he found *C. rutilans* only at Parà,* and *C. scintillans* only at St. Paulo, the distance between these places being 20° of longitude, or 1800 miles by the river.

Fam. GOMPHIDÆ.

I propose to describe here an insect pertaining to the genus *Petalia*, of Hagen, in its broad sense, the species of which are still most rare in collections. De Selys (Mon. Gomph.) divides *Petalia* into two sub-genera, *Petalia* and *Phyllopetalia*, formed on certain differences in neuration and markings; these latter are, in all the three described species, of a nature almost unique in the *Odonata*, and the insects possess general characters so very remarkable, that one is almost inclined to doubt whether it would not be better to consider all the species as members of one genus, varying specifically in minor details. My insect will not fit itself into either of the two divisions, and, following the authors of the "Monographic," I have constituted a third for its reception, under the term

HYPOPETALIA.

It differs from *Petalia* and *Phyllopetalia* in having three cellules in the discoidal triangles of all the wings, instead of two only, and the internal triangles have three cellules in the anterior wings and two in the posterior, (see wood-cut; *a*, anterior, *b*, posterior wing) whereas in the other divisions these triangles are altogether free in all the wings; furthermore, there are five cellules in the anal triangle of the posterior wings; the space surmounting the triangles is divided by a nervule in all the wings. The nodal sector is waved, as in



* M. de Selys Longchamps recorded ("Secondes additions aux Calopt.") *C. rutilans* from Santarem, as he now thinks in error. Mr. Bates has no recollection of having found either form between Parà and St. Paulo.

Phyllopetalia (it is not waved in *Petalia*). The membranule is scarcely present, as in *Phyllopetalia*. In the abdominal characters it also approaches *Phyllopetalia* rather than *Petalia*; thus the apex of the abdomen is dilated from the seventh segment, but there are no sensible lateral wing-like productions of the eighth, or these are scarcely evident; the appendices partake of the same form, the inferior with the middle lobe extending slightly beyond the apex of the superiors; these inferior appendices are convex beneath, and deeply concave above, the middle lobe being broad and rounded, the lateral lobe small and sub-acute. In the markings of the wings it also more resembles *Phyllopetalia* than *Petalia* in the number of the marginal spots, and the presence of an apical one, though these spots are more numerous than in either. The females of all these insects are yet unknown.

Hypopetalia pestilens, n. sp.

Head: face uniformly dirty greenish-yellow; the labrum margined in front with clearer yellow; the lower lip and palpi, and the posterior declivity of the front, also clear yellow; summit of front, and back of the head behind the eyes, with a thick crest of long black hairs.

Prothorax clothed with long hoary hairs. *Thorax* proper greenish-fuscous above, clothed with hoary hairs; the metathorax black posteriorly above, and with a deep black space in the centre of the dorsal crest, the surface finely rugose, the rugosity caused by the presence of a number of little tubercles, closely arranged in transverse rows; sides yellowish, on the anterior portion on each side is a large round whitish spot, broadly encircled with black, and beneath this a short oblique whitish line, margined with black; inter-alar space densely clothed with hoary hairs.

Legs black; the lower side of all the femora reddish.

Abdomen fuscous (colours probably changed), the middle of the second segment above, the sides of this segment, and the ventral margins of segments 3-6, testaceous, the suture blackish beneath; segments 7-10 yellowish beneath; superior appendices short (not so long as the tenth segment), rather narrow at the base, afterwards somewhat flattened, obtuse, black, yellowish at the extreme base; inferior appendage scarcely longer than the superior, yellow, the two lateral apical lobes, black.

Wings hyaline, scarcely tinged with yellowish; veins all black, excepting the first and fourth ante-cubital, and the costal vein over the pterostigma; pterostigma yellow, surmounting $2\frac{1}{2}$ cellules, dusky at its inner end. *Anterior wings* with seven livid reddish-brown costal spots, arranged as follows:—(1) a long space at the base, extending nearly to the second ante-cubital, occupying the width of the costal and subcostal areas, and continued obliquely into the basal area, where it changes to blackish; (2) a spot between the fifth and seventh ante-cubitals, rounded above, but occupying the breadth of the subcostal area beneath, giving off a second spot united to it, and smaller, placed below it more towards the base; (3) a very small spot in the sub-costal area, rather more than halfway between the base and nodus, and continued as a triangular point into the cellule in the costal area above (in one wing there is a still smaller spot below this); (4) a very large quadrate spot enclosing the nodus, and extending from the costa to the subnodal sector; (5) a smaller quadrate spot half-way from the nodus to the pterostigma, extending to the nodal sector, but only continued as the point of a triangle to the costa; (6) an irregular spot on the inner side of the pterostigma; (7) an elongate spot from the outer side of the pterostigma to the apex, where it is abrupt, not continued round the margin (these two last spots may be considered as one, divided by the pterostigma), and scarcely extending beneath the principal sector. *Posterior wings* with spots similar to those on the anterior, only that the small spot, No. 3, is altogether absent. (♂.)

Anterior wings—16 ante-cubitals, 14 post-cubitals; posterior wings—11 ante-cubitals, 14 post-cubitals. Discoidal cellules commencing in 3, continued in 2, again in 3, and finally in 4-5, rows.

Length of body, 38 lines (=80 mill.). Expanse of wings, 47 lines (=98 mill.).

Hab.—Chili (Reade).

My single example has evidently been placed between the leaves of a book, or in a letter, and both the form and colours of the body are somewhat injured.
